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Improving Road Safety with Intrastate ISS

In the early 1990s, the Federal Highway Administration initiated the development of the Inspection Selection System (ISS) to help states improve the effectiveness of their roadside safety inspections of interstate commercial vehicles. This national software program was adopted for use by Wisconsin in 1996 as part of its Motor Carrier Safety Assistance Program. The ISS program uses historical motor carrier data or, in some cases, lack of any data to recommend inspection of a vehicle or driver.

Further research by the Volpe National Transportation Systems Center resulted in the Motor Carrier Safety Status (SafeStat) Measurement System, first implemented as part of the Commercial Vehicle Information System (CVIS) program (now known as the Performance and Registration Information Systems Management – PRISM – program).

What's the Problem?

Approximately 47% of all reported commercial motor vehicle (CMV) crashes involve an *intrastate* carrier. In addition, approximately 92% of all reported bus crashes are listed as intrastate. Although the ISS and SafeStat programs have improved highway safety by monitoring carriers traveling between states, the programs do not adequately address CMV safety concerns at the state level. ISS and SafeStat rely on the USDOT identification number, required of all interstate motor carriers, as an identifier to integrate multiple sources of data, including carrier size, number of power units and number of drivers. However, carriers that only operate in Wisconsin (intrastate carriers) are not currently required to obtain a USDOT number and, therefore, are not covered by the programs. In order to improve road safety in Wisconsin, it is necessary to develop methods for predicting crash potential of intrastate CMVs and selecting appropriate carriers for Compliance Review.

Research Objectives

The two primary objectives of this project were to 1) develop a Wisconsin Intrastate ISS to select commercial motor vehicles for inspection that have a high likelihood of having Out-of-Service (OOS) violations; and 2) develop a methodology for ranking intrastate carriers in Wisconsin as candidates for Wisconsin's Intrastate Compliance Review (Carrier Audit) program. Investigators also surveyed other states to identify similar efforts and involved WisDOT and external stakeholders in the project.

Research Results

1) Using crash data and roadside inspection data for intrastate motor carriers in Wisconsin, the researchers developed a methodology for selecting vehicles more likely to have Out-of-Service violations. This "Direct Estimation" method involves merging the ranking of carriers based on historical inspection data (the Total OOS Rate) with the ranking based on historical crash data. The resulting Final Carrier Ranking generally identified the carriers with the highest number of "Crashes per Carrier."

BRIEF

from research to reality

RESEARCH DEVELOPMENT & TECHNOLOGY TRANSFER

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An officer performs an inspection at a Safety and Weight Enforcement Facility (SWEF).

"With an intrastate ISS, officers will be able to focus on carriers with a history of inspection violations."

- Sandra Huxtable
WisDOT Division of State Patrol

The primary limitation of this ranking is that the crash data are not adjusted for fleet size. The federal SafeStat methodology avoids this problem by using crashes per power unit in generating the crash ranking, suggesting the need for a federal identification number system that includes information on fleet size and numbers of drivers.

2) In order to develop a methodology for selecting carriers for compliance review, the researchers looked to other states. A telephone survey of 14 states revealed that Missouri had developed its own Intrastate SafeStat methodology that was consistent with the data available in Wisconsin. Using the Missouri model, the researchers proposed a Wisconsin SafeStat methodology that includes both inspection and crash data, providing a more comprehensive basis for selecting intrastate carriers for compliance reviews.

Implementation

WisDOT is in the process of creating a compliance review program based on the methodologies developed through this project. In addition, efforts are underway to establish a process for assigning unique identifiers to all Wisconsin intrastate carriers. Once the identifiers are in place and the Division of Motor Vehicle databases have been upgraded to include credentialing information of CMVs, then the Wisconsin Intrastate ISS can be implemented at Safety and Weight Enforcement Facilities (SWEFs) and in portable enforcement applications.

Expected Benefits

Enforcement officers will be used more effectively. Road safety in Wisconsin is expected to improve when officers are able to spend more of their time and efforts with carriers that have a poor safety rating.

For more information

Contact Sandra Huxtable at sandra.huxtable@dot.state.wi.us

Visit the Safety Inspections Web pages of the American Association of Motor Vehicle Administrators at www.aamva.org/vehicles/mnu_vehSafteyInspection.asp

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Improved Use of the Inspection Selection System (ISS) for Motor Carrier Safety: Development of an Intrastate ISS for Wisconsin Using the SafeStat Methodology

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